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Frederic Neftel

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EXAMINER

WILSON, LARRY ROSS

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,810	<b>Applicant(s)</b> NEFTEL ET AL.	
	<b>Examiner</b> LARRY R. WILSON	<b>Art Unit</b> 3767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-65 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2008 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

1. The amendment to the drawings is acknowledged, thus the objections to Figures 2-18, 7a, 14a, 21, 23, 24a, 24b, 24c, 26-30 and 32 are hereby withdrawn.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the membrane covering said channel along an oblique plane, preferably at 45° (claim 27), and a lip valve (claim 44), must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15      Claims 1, 2, 8, 9, 17, 19-21, 26, 30, 41-45, 48, 54, 56-58, 61, 64, and 65 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,350,357 to Dean Kamen, et al., (Kamen).

In Reference to Claim 1

Kamen teaches:

A system for performing fluid administration on a patient comprising:

- a liquid pump (col. 7, lines 44-46),
- a liquid distribution system connected to said pump in such a way that liquid can flow from the liquid distribution system to the pump and vice versa (col. 7, lines 52-54),
- liquid supply means (Fig. 1, #36) for supplying liquid to a patient via said liquid distribution system and said pump,
- a patient conduit (Fig. 1, #18) adapted for connecting said liquid distribution system to a patient,

characterized by the fact that said liquid distribution system comprises two distinct hub chambers which are separated by a space, the first hub chamber (Fig. 8A, #F9) including at least one liquid supply port (Fig. 8A, #33) with dedicated valve means (Fig. 8A, #V6), one patient port (Fig. 8A, # 35) with dedicated valve means (Fig. 8A, #V7) and one pump inlet (Fig. 8A, #66(2)), the second hub chamber (Fig. 8A, #F8) including at least, one patient port

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(Fig. 8A, #35)) or warmer port with dedicated valve means (Fig. 8A, #V8) and one pump outlet (Fig. 8A, #66(1)), said system furthermore comprising control means arranged to close said patient port of the first hub chamber (Fig. 33, #V7) when said liquid supply port (Fig. 8A, #33) is open and vice versa (Fig. 8A, #V6, V8).

#### In Reference to Claim 2

Kamen teaches:

System according to claim 1 (see rejection above) wherein said second hub chamber (Fig. 8A, #F8) furthermore includes at least one drain port (Fig. 8A, #29) with dedicated valve means (Fig. 8A, #V4), said control means being also arranged to close said patient port (Fig. 8A, #35) of the second hub chamber (Fig. 8A, #F8) when said drain port (Fig. 8A, #29) is open and vice versa.

#### In Reference to Claim 8

Kamen teaches:

A system according to claim 1 (see rejection above) wherein said first hub chamber (Fig. 8A, #F9) includes several liquid supply ports (Fig. 8A, #31, 33) with respective valve means (Fig. 8A, #V5, V6).

#### In Reference to Claim 9

Kamen teaches:

A system according to claim 8 (see rejection above) wherein said liquid supply ports (Fig. 8A, #31, 33) are connected to respective liquid supply means having each a different kind of liquid (Fig. 1, #20 & col. 35, lines 65-68).

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In Reference to Claim 17

Kamen teaches:

A system according to claim 1 (see rejection above) wherein said liquid pump (Fig. 8A, #P1, P2) and said liquid distribution system (Fig. 8A, #24) are fixed together to form a single cartridge (col. 7, lines 43-46).

In Reference to Claim 19

Kamen teaches:

A system according to claim 19 (see rejection above) wherein all hub chambers, including said ports and ports, are made within one single part (col. 7, lines 37-38, 43-44).

In Reference to Claim 20

Claim 20 is a product-by-process claim. This claim is not limited to manipulations of the recited steps, only the structure implied by the steps. The patentability of a product does not depend on its method of production. See MPEP 2113.

Kamen teaches:

A system according to claim 19 (see rejection above) wherein said single part is an injected part of plastic material (col. 7, lines 37-38).

In Reference to Claim 21

Kamen teaches:

A system according to claim 1 (see rejection above) wherein each hub chamber (Fig. 8A, #F9, F8) is closed with an upper wall made of a flexible membrane (Fig. 8, #59, 61), said membrane including valve elements (Fig. 8C, #V<sub>N</sub>) situated

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above each of said port or port with valve means (Fig. 8C, #68), said valve elements (Fig. 8C, #V<sub>N</sub>) being designed to close said port or port when the membrane (Fig. 8C, #59, phantom lines) moves downwardly.

In Reference to Claim 26

Kamen teaches:

A system according to claim 21 (see rejection above) wherein said membrane extends in such a way that it also covers said liquid pump (Fig. 8, #59, 61).

In Reference to Claim 30

Kamen teaches:

A system according to claim 1 (see rejection above) wherein said liquid distribution system (Fig. 8A, #24) includes liquid tight joints (Fig. 8C, #f) arranged in such a manner that they allow a liquid tight connection between said liquid distribution system and a membrane situated on it (col. 7, lines 40-42).

In Reference to Claim 41

Kamen teaches:

A system according to claim 1 (see rejection above) comprising a cartridge loading mechanism (col. 12, lines 65-68 and col. 13, lines 1-2) which allows a tight connection between the membrane (col. 13, lines 3-4) and the valves (col. 13, lines 17-21) and the liquid distribution system (Fig. 15B, #24).

In Reference to Claim 42

Kamen teaches:

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A system according to claim 1 (see rejection above) comprising flow blocking means (Fig. 16A, #144, 148) adapted to block the flow towards or from the liquid distribution system (col. 14, line 59) when this latter one is released out of the system (col. 14, lines 49-50).

In Reference to Claim 43

Kamen teaches:

A system according to claim 42 wherein said blocking means is a mechanical clamp situated on the patient line (Fig. 1, #40).

In Reference to Claim 44

Kamen teaches:

A system according to claim 42 (see rejection above) wherein said blocking means is a lip valve (Fig. 16A, #144, 148) situated on the patient line (col. 14, line 59), the system furthermore comprises a movable pin (Fig. 16B, #138) adapted to open said lip valve when the liquid distribution system is released out of the system col. 14, lines 25-29).

In Reference to Claim 45

Kamen teaches:

A system according to claim 21 (see rejection above) comprising a molded frame (Fig. 13, #102) adapted to cover the space between said hub chambers (Fig. 13, #122), each space above said hub chambers being covered by a flexible membrane (Fig. 8, #59, 61).

In Reference to Claim 48



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Claim 48 is a product-by-process claim. This claim is not limited to manipulations of the recited steps, only the structure implied by the steps. The patentability of a product does not depend on its method of production. See MPEP 2113.

Kamen teaches:

A system according to claim 45 (see rejection above) wherein said frame (Fig. 13, #102), membrane (Fig. 8, #59, 61) and liquid distribution system (Fig. 8A, #24) are obtained by overmolding technique.

In Reference to Claim 54

Kamen teaches:

A liquid distribution system (Fig. 8A, #24) for a system performing fluid administration on a patient (col. 38, line 1) as defined in claim 1.

In Reference to Claim 56

Kamen teaches:

Method of use of the system as defined in claim 1 (see rejection above) wherein said patient port (Fig. 33, V7) is closed when said liquid supply port (Fig. 33, #33) is open and vice versa (Fig. 34, #V6, V8).

In Reference to Claim 57

Kamen teaches:

Method according to claim 56 (see rejection above) wherein the pressure is always maintained positive with respect to the drain (col. 2, lines 66-68 – col. 3, lines 1-2).

In Reference to Claim 58

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Kamen teaches:

Method according to claim 56 (see rejection above) wherein said liquid is always pumped in the same direction (col. 2, lines 58-63).

In Reference to Claim 61

Kamen teaches:

Method according to claim 56 (see rejection above) wherein the drain phase is a function of the drain speed (col. 34, lines 45-51), said drain phase being ended when the speed is reaching a certain value based on the patient peritoneal cavity pressure measurement (col. 35, lines 55-57).

In Reference to Claim 64

Kamen teaches:

Method according to claim 56 (see rejection above) consisting in the use of a low Sodium concentration liquid for the last exchange cycle to improve ultrafiltration (col. 35, lines 65-68 - col. 36, lines 1-2).

Changing the dextrose concentration is known to increase ultrafiltration, similar to changing the Sodium concentration but without the increase in ionic concentration of the solution, which could lead to alterations in the electrical properties of the cells of the peritoneum.

In Reference to Claim 65

Kamen teaches:

Use of a system as defined in claim 1 (see rejection above) for peritoneal dialysis (col. 38, line 1).

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***Claim Rejections - 35 USC § 103***

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claim 3, 4, 5, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of U.S. Patent no. 5,437,629 to Milton H. Goldrath (Goldrath).

In Reference to Claim 3

Kamen teaches:

A system according to claim 1 (see rejection above) wherein said liquid distribution system (Fig. 8A, #24)

However, Kamen does not teach:

said liquid distribution system only includes two hub chambers.

Goldrath teaches:

said liquid distribution system only includes two hub chambers (Fig. 2, #12, Fig. 3, #37 & col. 5, lines 37-39).

It would have been obvious to one skilled in the art at the time of the invention to have used the chambers of Goldrath in the peritoneal dialysis apparatus of Kamen in order to collect the drained solution (col. 3, lines 17-18) implicitly taught by Goldrath.

In Reference to Claim 4

Kamen teaches:

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A system according to claim 1 (see rejection above) furthermore comprising a warmer system (Fig. 9, #74),...

said patient port (Fig. 8A, #35) of the second hub chamber (Fig. 8A, #F8) being connected to said warmer port (Fig. 8A, #27) via said warmer system (Fig. 9, #74).

However, Kamen does not teach:

a cavity including a warmer port and a patient port

Goldrath teaches:

a cavity (Fig. 2, #24) including a warmer port (Fig. 2, #22) and a patient port (Fig. 2, #26).

It would have been obvious to one skilled in the art at the time of the invention to have included the warmer port and cavity of Goldrath in the peritoneal dialysis apparatus of Kamen in order to maintain the solution at the desired temperature (col. 2, line 68 - col. 3, line 1).

#### In Reference to Claim 5

Kamen teaches:

A system according to claim 4 (see rejection above) wherein said warmer system (Fig. 9, #74)

However, Kamen does not teach:

is a warmer in-line.

Goldrath teaches:

is a warmer in-line (col. 6, lines 21-22).

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It would have been obvious to one skilled in the art at the time of the invention to have put the warmer of Goldrath in-line with the infusion pathway of Kamen in order to heat the solution as needed and reduce setup time.

In Reference to Claim 10

Kamen teaches:

A system according to claim 1 (see rejection above)

However, Kamen does not teach:

wherein said liquid pump is a peristaltic pump.

Goldrath teaches:

wherein said liquid pump is a peristaltic pump (Fig. 2, #36 & col. 4, lines 24-27).

It would have been obvious to one skilled in the art at the time of the invention to have used the peristaltic pump of Goldrath in the peritoneal dialysis apparatus of Kamen in order to provide continuous infusion as implicitly taught by Goldrath.

In Reference to Claim 11

Kamen teaches:

A system according to claim 10 (see rejection above)

However, Kamen does not teach:

wherein said peristaltic pump is unidirectional.

Goldrath teaches:

wherein said peristaltic pump is unidirectional (col. 4, lines 23-27).

It would have been obvious to one skilled in the art at the time of the invention to have used the peristaltic pump of Goldrath in the peritoneal dialysis apparatus of Kamen in a

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unidirectional manner in order to prevent backflow of dialysis solution into the patient as implicitly taught by Kamen.

18. Claims 6, 7, 40, 47, 49, 51, 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of European Patent Application Publication EP 1 195 171 A2 to Suzuki, Minoru et al. (Suzuki).

In Reference to Claim 6

Kamen teaches:

A system according to claim 5 (see rejection above)

However, Kamen does not teach:

wherein said warmer in-line comprises a warming plate contained therein, such warming plate being covered by a warming pouch like a sock.

Suzuki teaches:

wherein said warmer in-line comprises a warming plate (Fig. 7, #91, 92, 93) contained therein, such warming plate being covered by a warming pouch like a sock.

It would have been obvious to one skilled in the art at the time of the invention to have included the warming plates of Suzuki in the peritoneal dialysis apparatus of Kamen in order to improve heating efficiency of the dialysis fluid (col. 12, lines 50-52) as explicitly taught by Suzuki.

In Reference to Claim 7

Kamen teaches:

A system according to claim 6 (see rejection above)

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However, Kamen does not teach:

wherein said warming pouch is composed of a liquid channel which forces the liquid to be maintained within such warmer for a certain duration at a given flow rate.

Suzuki teaches:

wherein said warming pouch is composed of a liquid channel (Fig. 7, #831, 832) which forces the liquid to be maintained within such warmer for a certain duration at a given flow rate (col. 8, lines 25-28).

It would have been obvious to one skilled in the art at the time of the invention to have included the meandering liquid channel of Suzuki in the peritoneal dialysis apparatus of Kamen in order to reliably heat the dialysis fluid (col. 8, lines 27-28) as explicitly taught by Suzuki.

#### In Reference to Claim 40

Kamen teaches:

A system according to claim 1 wherein said liquid distribution system (Fig. 8A, #24)

However, Kamen does not teach:

includes an air sensor situated on the patient conduit side.

Suzuki teaches:

includes an air sensor (Fig. 2, #14) situated on the patient conduit side (Fig. 2, #33 & col. 13, lines 17-19).

It would have been obvious to one skilled in the art at the time of the invention to have

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added the air sensor of Suzuki to the peritoneal dialysis apparatus of Kamen in order to detect "bubbles on the inlet" side (col. 13, lines 18-19) as explicitly taught by Suzuki.

In Reference to Claim 47

Kamen teaches:

A system according to claim 45 (see rejection above) wherein said molded frame (Fig. 13, #102)

However, Kamen does not teach:

the frame is at least partially made of silicone, Kraton TM, Polyurethane TM, Pebax TM or Biopure TM.

Suzuki teaches:

the frame is at least partially made of silicone, Kraton TM, Polyurethane TM, Pebax TM or Biopure TM (col. 9 lines 56-58 and col. 10, lines 1-10).

It would have been obvious to one skilled in the art at the time of the invention to have chosen the material of Suzuki for the peritoneal dialysis apparatus of Kamen in order to improve the quality and reduce the costs of the cassette (col. 9, lines 38-40) as explicitly taught by Suzuki.

In Reference to Claim 49

Kamen teaches:

A system according to claims 21 (see rejection above)

However, Kamen does not teach:

using a double layer membrane adapted to prevents spallation or particule release into the fluid during use.



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Suzuki teaches:

using a double layer membrane (col. 10, lines 10-12) adapted to prevents spallation or particule release into the fluid during use.

It would have been obvious to one skilled in the art at the time of the invention to have used the double layer membrane of Suzuki in the peritoneal dialysis apparatus of Kamen in order to improve the quality of the cassette as implicitly taught by Suzuki.

In Reference to Claim 51

Kamen teaches:

A system according to claim 21 (see rejection above) ... which covers and holds the membrane (Fig. 8, #59, 61),

However, Kamen does not teach:

furthermore comprising a rigid plate ... said rigid plate comprising holes adapted to let moving elements passing through.

Suzuki teaches:

furthermore comprising a rigid plate (Fig. 4, #812) ... said rigid plate (Fig. 4, #812) comprising holes (Fig. 5, 81b) adapted to let moving elements passing through (col. 10, lines 15-18).

It would have been obvious to one skilled in the art at the time of the invention to have included the rigid plate of Suzuki in the peritoneal dialysis apparatus of Kamen in order to allow reliable and easy loading of a cassette by anyone (col. 3, lines 26-28) as explicitly taught by Suzuki.

In Reference to Claim 52

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Kamen teaches:

A system according to claim 51 (see rejection above)

However, does not teach:

wherein said rigid plate includes pins situated on the membrane side, said pins being adapted to be fixed

Suzuki teaches:

wherein said rigid plate (Fig. 4, #812) includes pins (Fig. 4) situated on the membrane side (Fig. 4, #811), said pins being adapted to be fixed (col. 9, lines 15-17) on the liquid distribution system (Kamen Fig. 8A, #24).

It would have been obvious to one skilled in the art at the time of the invention to have included the pins of Suzuki in the peritoneal dialysis apparatus of Kamen in order to secure the fluid distribution system in a cassette unit as implicitly taught by Suzuki.

19. Claims 12, 35-39, 50, and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of U.S. Patent No. 4,758,228 to David R. Williams (Williams).

In Reference to Claim 12

Kamen teaches:

A system according to claim 1 (see rejection above) wherein said liquid pump (Fig. 8A, #P1, P2)

However, Kamen does not teach:

the liquid pump is composed of a tubing and rolling surface on which the tubing is compressed once the cartridge is inserted into a pumping device containing rollers.

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Williams teaches:

the liquid pump is composed of a tubing (Fig. 2A, #36) and rolling surface on which the tubing is compressed (Fig. 2A, #46) once the cartridge is inserted into a pumping device containing rollers (col. 4, lines 53-56).

It would have been obvious to one skilled in the art at the time of the invention to have included the peristaltic pump of Williams in the peritoneal dialysis apparatus of Kamen in order to provide a peristaltic pump where variations in the administration set are minimized (col. 2, lines 9-12) as explicitly taught by Williams.

In Reference to Claim 35

Kamen teaches:

A system according to claim 21 (see rejection above) wherein said membrane (Fig. 8, #59, 61)

However, Kamen does not teach:

said membrane contains a portion which is forming part of a pressure sensor.

Williams teaches:

said membrane contains a portion (Fig. 10, #140) which is forming part of a pressure sensor (col. 3, lines 4-5).

It would have been obvious to one skilled in the art at the time of the invention to have included the pressure sensor of Williams in the membrane of Kamen in order to provide an inexpensive and very accurate pressure sensor (col. 2, lines 13-15) as explicitly taught by Williams.

In Reference to Claim 36

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Kamen, as modified by Williams, teaches:

A system according to claim 35 (see rejection above)

With Williams further teaches the limitation of:

wherein the active area of said pressure sensor (Fig. 11A, #168A & Fig. 11B, #168B) is designed to be more flexible than the remaining area (col. 8, lines 55-58).

It would have been obvious to one skilled in the art at the time of the invention to have included the pressure sensor of Williams in the peritoneal dialysis apparatus of Kamen in order to provide very accurate pressure sensor (col. 2, lines 13-15) in cassette as explicitly taught by Williams.

In Reference to Claim 37

Kamen, as modified by Williams, teaches:

A system according to claim 35 (see rejection above)

With Williams further teaches the limitation of:

wherein said pressure sensor has the shape of a disc (Fig. 10, #148, 150) of which the periphery is gripped (Fig. 11B, #168B), said disc furthermore comprising an annular ply (Fig. 10, #148, 150).

It would have been obvious to one skilled in the art at the time of the invention to have included the disc shape of Williams in the peritoneal dialysis apparatus of Kamen in order to sense pressure in a circular tube as implicitly taught by Williams.

In Reference to Claim 38

Kamen, as modified by Williams, teaches:

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A system according to claim 35 (see rejection above)...independently from said hub chambers (Fig. 8A, #F9, F8).

With Williams further teaches the limitation of:

wherein said pressure sensor is situated on the patient line (col. 7, lines 58-63)

It would have been obvious to one skilled in the art at the time of the invention to have included a pressure sensor on the patient line of Williams in the peritoneal dialysis apparatus of Kamen in order to indicate to the operator or to signal an alarm (col. 3, lines 16-17) as explicitly taught by Williams.

In Reference to Claim 39

Kamen, as modified by Williams, teaches:

A system according to claim 35 (see rejection above)

With Williams further teaches the limitation of:

comprising a second pressure sensor (Fig. 10, #148), said second pressure sensor being in connection with the first hub chamber (Fig. 13, #144B, 146B).

It would have been obvious to one skilled in the art at the time of the invention to have added a pressure sensor of Williams on the first hub chamber of Kamen in order to indicate to the operator or signal an alarm (col. 3, lines 16-17) as explicitly taught by Williams.

In Reference to Claim 50

Kamen teaches:

A system according to claim 1 (see rejection above)

However, Kamen does not teach:

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furthermore comprising a window for detecting correct positioning of the tube.

Williams teaches:

furthermore comprising a window for detecting correct positioning of the tube  
(col. 2, lines 32-38 & col. 10, lines 32-37).

It would have been obvious to one skilled in the art at the time of the invention to have included the window of Williams in the peritoneal dialysis apparatus of Kamen in order to ensure correct installation of the cassette as implicitly taught by Williams.

It is inherent that when installing the tube and then rotating the pump knob to return the rollers to the pumping position the "first cutout" could function as window.

In Reference to Claim 55

Kamen, as modified by Williams teaches:

for a system for performing fluid administration on a patient (Kamen col. 38,  
line 1) as defined in claim 35 (see rejection above).

With Williams further teaches the limitation of:

a pressure sensor (Fig. 10, #140)

It would have been obvious to one skilled in the art at the time of the invention to have further added the pressure sensor of Williams to the peritoneal dialysis apparatus of Kamen, as modified by Williams, in order to indicate to the operator or to signal an alarm (col. 3, lines 16-17) as explicitly taught by Williams.

20. Claims 15 & 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of U.S. Patent No. 5,683,233 to Ahmad-Maher Moubayed et al. (Moubayed).

In Reference to Claim 15

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Kamen teaches:

A system according to claim 1 wherein said liquid pump (Fig. 8A, #P1, P2)

However, Kamen does not teach:

the liquid pump comprises a flexible or partially flexible channel and a series of movable finger elements successively situated above said channel, each finger element being movable along a direction which is substantially perpendicular to said channel, all finger elements being adapted to induce a peristaltic movement along said channel.

Moubayed teaches:

the liquid pump comprises a flexible or partially flexible channel (Fig. 1, #28) and a series of movable finger elements successively situated above said channel (Fig. 1, #48), each finger element being movable along a direction which is substantially perpendicular to said channel (Fig. 1), all finger elements being adapted to induce a peristaltic movement along said channel (col. 2, lines 49-62).

It would have been obvious to one skilled in the art at the time of the invention to have added the linear peristaltic pump of Moubayed in the peritoneal dialysis apparatus of Kamen in order to “accommodate a greater range of tube wall thicknesses (col. 2, lines 24-25) as explicitly taught by Moubayed.

#### In Reference to Claim 16

Kamen teaches:

A system according to claim 15 (see rejection above)

However, Kamen does not teach:

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wherein each finger element comprises a convex basis adapted to conform with the channel inner surface and a shaft adapted to be linked to an actuator.

Moubayed teaches:

wherein each finger element comprises a convex basis (Fig. 2, #62) adapted to conform with the channel inner surface (col. 3, lines 53-55) and a shaft adapted to be linked to an actuator (Fig. 1, #48).

It would have been obvious to one skilled in the art at the time of the invention to have included the rounded pinch finger of Moubayed in the peritoneal dialysis apparatus of Kamen in order to "substantially eliminate damage to the tube" (col. 2, line 26) as explicitly taught by Moubayed.

21. Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen, as modified by Williams, as applied to claim 12 above, and further in view of Moubayed.

In Reference to Claim 27

Kamen, as modified by Williams, teaches:

A system according to claim 12 (see rejection above) wherein said liquid pump (Fig. 8A, #P1, P2)

But does not teach the liquid pump comprises a flexible or partially flexible channel, said membrane covering said channel along an oblique plane, preferably at 45°, in order to allow a peristaltic movement induced by rollers or similar elements.

Moubayed teaches:

comprises a flexible or partially flexible channel (Fig. 1, #28), said membrane covering said channel along an oblique plane (col. 3, line 26), preferably at 45°, in



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order to allow a peristaltic movement induced by rollers or similar elements (col. 2, 49-62).

It would have been obvious to one skilled in the art at the time of the invention to have included the flexible channel and membrane of Moubayed in the peritoneal dialysis apparatus of Kamen, as modified by Williams, in order to avoid wall erosion or spallation causing particulate matter to end the fluid stream as implicitly taught by Moubayed. The membrane covers the channel and is along an oblique plane since the tube passes through a curvilinear peristaltic pump race.

In Reference to Claim 28

Kamen, as modified by Williams, teaches:

A system according to claim 27 (see rejection above)

But does not teach a system comprising individual actuators or a cam (e.g. a disc with a vawe) adapt to induce a peristaltic movement.

Moubayed teaches:

comprising individual actuators (Fig. 1, #48) or a cam (e.g. a disc with a vawe) (Fig. 1, #30) adapt to induce a peristaltic movement (col. 2, lines 49-62).

It would have been obvious to one skilled in the art at the time of the invention to have included the cam of Moubayed in the peritoneal dialysis apparatus of Kamen, as modified by Williams, in order to extend and retract the pump fingers (col. 4, lines 2-3) as explicitly taught by Moubayed.

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22. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen, as modified by Williams and Moubayed, as applied to claim 28 above, and further in view of U.S. Patent No. 2,684,829 to Rolland McFarland Jr. (McFarland).

In Reference to Claim 29

Kamen, as modified by Williams and Moubayed, teaches:

A system according to claim 28 (see rejection above) wherein said individual actuators are adapted to be actuated by fingers (Moubayed Fig. 1, #30)

But does not teach, the actuators are actuated by fingers clipped to the membrane

McFarland teaches:

which are clipped (Fig. 6, #39) to said membrane.

It would have been obvious to one skilled in the art at the time of the invention to have included the clip of McFarland in the peritoneal dialysis apparatus of Kamen, as modified by Williams and Moubayed, in order to improve the diaphragm to extend diaphragm life and maintain proper mechanical action (col. 1, lines 30-34) as implicitly taught by McFarland.

23. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen, as modified by Williams, as applied to claims 12 above, and further in view of U.S. Patent No. 4,530,647 to Fumio Uno (Uno).

In Reference to Claim 13

Kamen, as modified by Williams, teaches:

A system according to claim 12 (see rejection above) where said rollers (Williams col. 4, lines 53-56)

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But does not teach a system where said rollers are of a conical shape in such a way as to be self inserted in the pump race, i.e. without any other mechanism.

Uno teaches:

are of a conical shape (Fig. 2, #5, 5') in such a way as to be self inserted in the pump race (col. 1, lines 42-44), i.e. without any other mechanism.

It would have been obvious to one skilled in the art at the time of the invention to have included the conical rollers of Uno in the peritoneal dialysis apparatus of Kamen, as modified by Williams, in order to replace the pump tube due to wear out (col. 1, lines 62-63) as explicitly taught by Uno.

24. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen, as modified by Williams, as applied to claims 12, 35-39, and 55 above, and further in view of U.S. Patent No. 5,840,069 to Reginald D. Robinson (Robinson).

In Reference to Claim 14

Kamen, as modified by Williams, teaches:

A system according to claim 12 (see rejection above) where said rollers (Williams col. 4, lines 53-56)

But does not teach a system where said rollers are of a spherical shape.

Robinson teaches:

are of a spherical shape (Fig. 1, #62, 63 & col. 2, lines 19-20).

It would have been obvious to one skilled in the art at the time of the invention to have used the spherical rollers of Robinson in the peritoneal dialysis apparatus of Kamen, as

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modified by Williams, in order to produce a highly accurate peristaltic pump and minimize the necessary machining (col. 1, lines 44-46) as explicitly taught by Robinson.

25. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of U.S. Patent No. 5,478,211 to Dominiak et al. (Dominiak).

In Reference to Claim 18

Kamen teaches:

A system according to claim 17 wherein said liquid pump (Fig. 8A, #P1, P2) is fixed to said liquid distribution system (Fig. 8A, #24 & col. 7, lines 43-46)

However, Kamen does not teach:

by vibration attenuation means in order to minimize the vibration on the liquid distribution system when the pump is operating.

Dominiak teaches:

by vibration attenuation means (col. 17, lines 29-32) in order to minimize the vibration on the liquid distribution system when the pump is operating.

It would have been obvious to one skilled in the art at the time of the invention to have included the vibration attenuation means of Dominiak in the peritoneal dialysis apparatus of Kamen in order to increase patient comfort as implicitly taught by Dominiak.

26. Claims 31, 34, 46, and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of U.S. Patent No. 4,828,545 to Paul Epstein, et al. (Epstein).

In Reference to Claim 31

Kamen teaches:

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A system according to claim 21 (see rejection above) wherein said membrane (Fig. 8, #59, 61)

However, Kamen does not teach:

contains protruding elements designed for a liquid tight connection between said hub chambers.

Epstein teaches:

contains protruding elements (Fig. 4C, #250, 262, 263) designed for a liquid tight connection between said hub chambers (col. 16, lines 42-46).

It would have been obvious to one skilled in the art at the time of the invention to have included the protruding elements of Epstein in the peritoneal dialysis apparatus of Kamen in order to provide a seal to prevent fluid flow (col. 16, lines 45-46) as explicitly taught by Epstein.

#### In Reference to Claim 34

Kamen teaches:

A system according to claim 21 (see rejection above) wherein said membrane (Fig. 8, #59, 61)

However, Kamen does not teach:

is press-fitted along its external border to the liquid distribution system, the membrane being furthermore held by a frame.

Epstein teaches:

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is press-fitted (Fig. 4D, Fig. 4E, #198) along its external border to the liquid distribution system (Fig. 4A, #194), the membrane (Fig. 4C, #198) being furthermore held by a frame (Fig. 4E, #196).

It would have been obvious to one skilled in the art at the time of the invention to have included the press-fit and frame of Epstein in the peritoneal dialysis apparatus of Kamen in order to create a "fluid tight sealing engagement" (col. 15, lines 44-45) as explicitly taught by Epstein.

In Reference to Claim 46

Kamen teaches:

A system according to claim 45 (see rejection above) wherein said molded frame (Fig. 13, #102)

However, Kamen does not teach:

is fixed to said liquid distribution system, e.g. by ultrasound, laser welding, gluing or thermal bonding.

Epstein teaches:

is fixed to said liquid distribution system (Fig. 4E, #196), e.g. by ultrasound, laser welding, gluing or thermal bonding (col. 16, lines 61-63).

It would have been obvious to one skilled in the art at the time of the invention to have included the fixed frame liquid distribution system of Epstein in the peritoneal dialysis apparatus of Kamen in order to secure in fluid tight sealing engagement (col. 16, lines 62-63) as explicitly taught by Epstein.

In Reference to Claim 59

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Kamen teaches:

Method according to claim 56 (see rejection above) ... entering and exiting the liquid distribution system (Kamen Fig. 8A, #24)

However, Kamen does not teach:

consisting of sensing the liquid pressure entering and exiting ... and, if necessary, correct the pump flow rate in accordance with the pressure difference.

Epstein teaches:

consisting of sensing the liquid pressure (Fig. 1, #40) ... and, if necessary, correct the pump flow rate in accordance with the pressure difference (col. 21, lines 7-10).

It would have been obvious to one skilled in the art at the time of the invention to have added the flow rate control method of Epstein in the peritoneal dialysis apparatus of Kamen in order to detect a "variation between actual and intended infusate volume" (col. 3, lines 39-40) as explicitly taught by Epstein.

27. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of U.S. Patent No. 4,952,372 to Bernhard Huber (Huber).

In Reference to Claim 60

Kamen teaches:

Method according to claim 56 (see rejection above)

However, Kamen does not teach:

consisting in regulating the pump flow rate according to a known predetermined alteration of the flow rate by aging of the tubing.

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Huber teaches:

consisting in regulating the pump flow rate according to a known predetermined alteration of the flow rate by aging of the tubing (col. 6, lines 16-20).

It would have been obvious to one skilled in the art at the time of the invention to have included the tubing age compensation method of Huber in the peritoneal dialysis apparatus of Kamen in order that "delivery is independent of aging and external influences" (col. 6, lines 19-20) as explicitly taught by Huber.

28. Claims 62 and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of U.S. Patent No. 4,586,920 to Alan M. Peabody (Peabody).

In Reference to Claim 62

Kamen teaches:

Method according to claim 56 (see rejection above)

However, Kamen does not teach:

wherein the peritoneal volume filled during a cycle is a function of the intra-peritoneal pressure.

Peabody teaches:

wherein the peritoneal volume filled during a cycle is a function of the intra-peritoneal pressure (col. 5, lines 51-55).

It would have been obvious to one skilled in the art at the time of the invention to have included the pressure control method of Peabody in the peritoneal dialysis apparatus of Kamen in order to increase dialysis efficiency as explicitly taught by Peabody (col. 2, lines 22-25).



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In Reference to Claim 63

Kamen teaches:

Method according to claim 62 (see rejection above)

However, Kamen does not teach:

wherein the peritoneal cavity is partially emptied as soon as the pressure has reached a predefined threshold.

Peabody teaches:

wherein the peritoneal cavity is partially emptied as soon as the pressure has reached a predefined threshold (col. 5, lines 11-19).

It would have been obvious to one skilled in the art at the time of the invention to include the pressure control method of Peabody in the peritoneal dialysis apparatus of Kamen in order to minimize the danger of infection as explicitly taught by Peabody (col. 2, lines 29-30).

29. Claims 22, 32, 33, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of U.S. Patent No. 2,684,829 to Rolland McFarland Jr. (McFarland).

In Reference to Claim 22

Kamen teaches:

A system according to claim 1 (see rejection above) wherein each hub chamber (Fig. 8A, #F8, F9) is closed with an upper wall made of a flexible membrane (Fig. 8, #59, 61),

However, Kamen does not teach:

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said membrane including clipping means adapted to clip elements such as valve actuating or finger elements.

McFarland teaches:

said membrane including clipping means (Fig. 6, #39) adapted to clip elements such as valve actuating (Fig. 6, #33) or finger elements.

It would have been obvious to one skilled in the art at the time of the invention to have added the clip elements of McFarland to the peritoneal dialysis apparatus of Kamen in order to improve the diaphragm to extend diaphragm life and maintain proper mechanical action (col. 1, lines 30-34) as implicitly taught by McFarland.

In Reference to Claim 32

Kamen teaches:

A system according to claim 21 (see rejection above) wherein each of said valve elements (Fig. 8C, #V<sub>N</sub>)

However, Kamen does not teach:

is designed to be clipped to an actuator (34), e.g. an electromagnetic actuator or a magnet, arranged above said membrane (13).

McFarland teaches:

is designed to be clipped (Fig. 6, #39) to an actuator (Kamen Fig. 13, #VA1), e.g. an electromagnetic actuator or a magnet, arranged above said membrane (Kamen Fig. 7).

It would have been obvious to one skilled in the art at the time of the invention to have included the clip of McFarland in the peritoneal dialysis apparatus of Kamen in order to

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improve the diaphragm to extend diaphragm life and maintain proper mechanical action (col. 1, lines 30-34) as implicitly taught by McFarland.

In Reference to Claim 33

Kamen teaches:

A system according to claim 32 (see rejection above) wherein each of said valve elements (Fig. 8C, #V<sub>N</sub>)

However, Kamen does not teach:

comprises a cavity designed to receive and hold the plunger of an actuator, said cavity having an height which substantially corresponds to at least the valve displacement.

McFarland teaches:

comprises a cavity (col. 4, lines 47-48) designed to receive and hold the plunger of an actuator (Fig. 6, #33), said cavity having an height which substantially corresponds to at least the valve displacement (col 4, lines 48-54).

It would have been obvious to one skilled in the art at the time of the invention to have added the cavity of McFarland in the peritoneal dialysis apparatus of Kamen in order to improve the diaphragm to extend diaphragm life and maintain proper mechanical action (col. 1, lines 30-34) as implicitly taught by McFarland.

Furthermore, it is inherent in the disclosure of McFarland that the cavity is at least the valve displacement because in order for the lower surface of the bar to conform "to the contour of the surface of weir 35 in order to hold the diaphragm in leak-proof relationship with the weir when in closed position" (col. 4, lines 50-54).

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In Reference to Claim 53

Kamen teaches:

A system for performing fluid administration (col. 1, lines 8-9) on a patient comprising a flexible membrane (Fig. 8, #59, 61) forming a valve seat (Fig. 8C, #72)

However, Kamen does not teach:

characterized by the fact that said membrane includes a clipping mechanism adapted to be reversibly attached to a moving actuator in such a way that the membrane movement can be controlled in a push and a pull operation mode.

McFarland teaches:

characterized by the fact that said membrane includes a clipping mechanism (Fig. 6, #39) adapted to be reversibly (col. 4, lines 62-65) attached to a moving actuator (Fig. 6, #33) in such a way that the membrane movement can be controlled in a push and a pull operation mode (col. 5, lines 23-29, 62-66).

It would have been obvious to one skilled in the art at the time of the invention to have included the clipping mechanism of McFarland in the peritoneal dialysis apparatus of Kamen in order to improve the diaphragm to extend diaphragm life and maintain proper mechanical action (col. 1, lines 30-34) as implicitly taught by McFarland.

30. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamen in view of McFarland as applied to claim 22 above, and further in view of European Patent Application Publication EP 1 195 171 A2 to Suzuki, Minoru et al. (Suzuki).

In Reference to Claim 23

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Kamen, as modified by McFarland, teaches:

A system according to claim 22 (see rejection above)

But does not teach a system wherein said membrane is molded.

Suzuki teaches wherein said membrane is molded (col. 9, lines 36-38).

It would have been obvious to one skilled in the art at the time of the invention to have used the molded membrane of Suzuki in the peritoneal dialysis apparatus of Kamen, as modified by McFarland, in order to improve the quality of the cassette and reduce the cost (col. 9, lines 38-40) as explicitly taught by Suzuki.

In Reference to Claim 24

Kamen, as modified by McFarland, teaches:

A system according to claim 23 (see rejection above) wherein said membrane is made out of any of the following materials: silicone, Kraton TM, Santoprene TM, polyurethane, Pebax TM or Biopure TM.

But does not teach a system wherein said membrane is made out of any of the following materials: silicone, Kraton TM, Santoprene TM, polyurethane, Pebax TM or Biopure TM.

Suzuki teaches wherein said membrane is made out of any of the following materials: silicone (col. 10, line 8), Kraton TM (thermoplastic elastomer col. 10, line 5), Santoprene TM (a polyolefin col. 9, line 56), polyurethane (col. 10, line 7), Pebax TM (thermoplastic elastomer or flexible polyamide col. 10, line 7) or Biopure TM.

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It would have been obvious to one skilled in the art at the time of the invention to have chosen a material with particular properties, "a soft resin" (col. 9, line 56). See MPEP 2144.07.

In Reference to Claim 25

Kamen, as modified by McFarland, teaches:

A system according to claim 24 (see rejection above) wherein said membrane includes liquid tight joints (Kamen col. 7, lines 40-42).

***Response to Amendment***

3. The amendments to claims 1, 6, 9, 22, 24, 27, 28, 32, 46, 47, and 65 are acknowledged.

*Drawings*

4. The amendments to the drawings, and the supplemental color drawings, are acknowledged, thus the objections to Figures 2-18, 7a, 14a, 21, 23, 24a, 24b, 24c, 26-30 and 32 are hereby withdrawn. However, claimed features are still not shown, thus the drawings are still objected to. See above.

*Claim Rejections - 35 USC § 112*

5. The rejection of claims 6-7, 22-25, 27-29, 32-33, 46, 47, and 65 is overcome by the amendment submitted on 24 November 2008. The rejections are hereby withdrawn.

***Response to Arguments***

6. Applicant's arguments filed 24 November 2008 have been fully considered but they are not persuasive.

7. In response to applicant's argument that Kamen fails to show the claimed invention because the pump of the claimed invention is separate from the liquid distribution system, claim

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1 recites the limitations: “- a liquid pump, a liquid distribution system connected to said pump in such a way that liquid can flow from the liquid distribution system to the pump and vice versa.”

The relationship between these two components is “connected to”, the reference of Kamen teaches a pump connected to the liquid distribution system, albeit formed within the same cartridge. Since the positioning of the pump with respect to the liquid distribution system is not claimed the reference of Kamen meets the limitations of the limitations of the claims as presented.

8. In response to the applicant’s argument that Kamen's pump is different from applicant's pump which is a peristaltic pump. This limitation is not found in Claim 1, which only requires “a liquid pump.” This limitation is found in claim 10, where Kamen is combined with Goldrath, which teaches a peristaltic pump (see rejection above).

9. In response to applicant's argument that the locations and functions of Kamen's elements compared to applicant's elements have a significant impact on the way in which liquids are moving within the two different liquid distribution systems. The liquid is claimed as moving between two distinct hubs, Kamen discloses two distinct hub chambers F8 and F9, the fact that these hubs are connected to a diaphragm pump does not change their relationship structurally or functionally, fluids still flow from chamber F9 to F8, and vice versa.

10. In response to applicant's argument that the first hub chamber including at least one liquid supply port with dedicated valve means, as shown in Fig. 8A, hub chamber F9 is connected to liquid supply ports 31, 33, and 35 via valves V5, V6, and V7. The valves must be open in various combinations in order for the pump to function, as a result these function in the same manner as applicant’s first and second hub chambers. The labels applied to various

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components do not define patentable subject matter because the applicant is their own lexicographer.

11. In response to applicant's argument that "Kamen cannot be modified in any reasonable apparent fashion based on the teachings of the secondary references in order to arrive at the invention of claim 1." Claim 1 has been rejected under 35 USC 102(b) as being anticipated by Kamen. Anticipatory references applied under 35 USC 102(b) must teach every element of the claims and the claims are given their broadest reasonable interpretation in light of the specification, however limitations from the specification are not read into the claims. (See MPEP 2111 & 2131).

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



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13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LARRY R. WILSON whose telephone number is (571)270-5899.

The examiner can normally be reached on Monday-Thursday 7:00 AM - 5:30 PM (EST).

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin C. Sirmons can be reached on 571-272-4965. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/L. R. W./

Examiner, Art Unit 3767

/Kevin C. Sirmons/

Supervisory Patent Examiner, Art Unit 3767